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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,409	01/02/2004	Takeshi Nomura	396.43380X00	2839

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EXAMINER

KNABLE, GEOFFREY L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/749,409

Applicant(s)

NOMURA ET AL.

Examiner

Geoffrey L. Knable

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7-12-2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

1. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5, the units given for the oxygen permeation coefficient are apparently incorrect, this creating an ambiguity. It would appear that "ml" was omitted.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-5, 10-15 and 17-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Boon et al. (US 5,036,113).

Boon et al. discloses a pneumatic tire including an air barrier coating layer, the formation of which includes curing a urethane resin composition comprising a reaction between a diol and an organic diisocyanate. Further, the small group of suitable isocyanates includes "meta-xylene diisocyanate" and "para-xylene diisocyanate" (esp. col. 6, lines 5-6), it being considered that such isocyanates would reasonably be expected to result in a polymer including a significant amount of a skeleton consistent with the structure claimed. As to the permeation coefficient, Boon et al. clearly desires a composition that has what is described as "extremely low air permeability" (col. 4, line 20) and further indicates an upper limit on the oxygen permeability, although measured differently than claimed (i.e. different temperature and humidity - note col. 4, lines 27-31) and thus not directly comparable to the coefficient claimed. It is submitted however that the desire of the reference to have a very low permeability material along with the suggestion of only an upper limit on the oxygen permeability coupled with the disclosure of a compound that would be expected to be inclusive of a skeleton consistent with that claimed, provides sufficient basis to believe that the reference compound would anticipate or render obvious a tire as claimed.

As to claims 2-3, note innerliner layer "18" which can be butyl (col. 4, line 5) which would be expected to meet the claimed requirements. As to claims 4, 13 and 14, the described compounds are apparently inclusive of compounds that would have an

odd number of atoms. As to claims 5 and 15, polyols are suggested. As to claims 10-12 and 17-19, the above noted xylene diisocyanates (col. 6, lines 5-6) would appear to be understood to be the same as "xylylene diisocyanate" (i.e. XDI).

6. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (US 6,569,533) taken in view of at least one of [Lin et al. (US 5,040,583) and Kaido et al. (US 6,136,123)].

Uchida et al. discloses a gas barrier polyurethane resin useful as a film, sheet, etc. and having low oxygen permeability that would appear consistent with that claimed although apparently not measured at the exact same conditions claimed (e.g. col. 7, lines 33+ and col. 15, lines 30+0. Further, xylylene diisocyanate (XDI) is described as a "particularly preferred" isocyanate (col. 3, lines 33-63), it being expected that such would provide a significant amount of a skeleton structure in the polymer as claimed. Although the polymer and permeability are not characterized in the same manner as claimed, the desire of the reference to have a very low permeability polyurethane material coupled with the disclosure of a particularly preferred isocyanate compound that would be expected to be inclusive of a skeleton consistent with that claimed, provides sufficient basis to believe that the reference compound would anticipate or render obvious a polyurethane compositions as claimed. This reference does not however specifically suggest application as a skin layer in a tire.

Lin et al. (esp. cols. 2-3) and Kaido et al. (esp. cols. 2-3) provide evidence that those having ordinary skill in the tire art have contemplated use of a wide variety of gas barrier film materials as a barrier layer for a tire in order to allow reduction in the tire

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weight as compared to conventional tires having butyl based innerliner. Given this knowledge, it is considered to have been obvious at the time the invention was made to adopt a desirable polyurethane gas barrier film material as taught by Uchida et al. as a barrier layer in a tire with a reasonable expectation of being able to successfully lighten the tire as compared to a tire having a typical butyl based innerliner.

As to claims 2-3, note that Lin et al. teaches use of surface layers and Kaido et al. suggests that the adjacent rubber layers can be halogenated butyl (col. 4, lines 44-53), it being considered that such would suggest inclusion of adjacent layers that can be termed auxiliary layers consistent with the claims. As to claims 4, 13 and 14, the described compounds are apparently inclusive of compounds that would have an odd number of atoms. As to claims 5-9, 15 and 16, polyols as well as various amines including xylylene diamines (col. 4, lines 47+) and apparently alkylene oxides (e.g. col. 6, lines 4-5 and 40-44) are suggested. As to claims 10-12 and 17-19, note again the above noted suggestion to preferably use XDI.

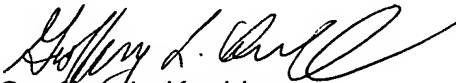
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pace (US 3,299,934) discloses a tire having a polyurethane skin layer but would not suggest a material as claimed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
April 11, 2006